Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-122 (Cancelled)

123 (Currently amended). A method for the preparation of a cell composition consisting essentially of human hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells capable of migrating in response to stromal-derived factor 1 (SDF-1), said hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells having the capacity of migrating to, and of engraftment and repopulation of, the bone marrow in a host, ~~wherein~~ comprising:

stimulating $CD38^{-/low}$ $CXCR4^{-/low}$ stem cells ~~are stimulated~~ for up to five days with a suitable agent capable of converting $CD38^{-/low}$ $CXCR4^{-/low}$ into $CD38^{-/low}$ $CXCR4^{+}$ stem cells, thus converting the $CD38^{-/low}$ $CXCR4^{-/low}$ into $CD38^{-/low}$ $CXCR4^{+}$ stem cells, and wherein said suitable agent is selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said cytokines and stromal cells being cytokines and stromal cells involved in a process of maintenance, expansion, development, or combinations thereof, of stem cells, and

sorting out those $CD38^{-/low}$ $CXCR4^{+}$ stem cells that migrate in response to SDF-1.

124 (Previously presented). The method according to claim 123, wherein the $CD38^{-/low}$ $CXCR4^{-/low}$ stem cells are stimulated with said suitable agent for 1-2 days.

125 (Previously presented). A method for increasing the population of hematopoietic $CXCR4^+$ stem cells for use in clinical transplantation, which comprises up-regulating surface CXCR4 expression of hematopoietic stem cells and sorting out those $CXCR4^+$ stem cells that migrate in response to stromal-derived factor (SDF-1), wherein said up-regulation is carried out by stimulation of a cellular population comprising hematopoietic $CXCR4^+$ and $CXCR4^{-/low}$ stem cells that have the potential to express CXCR4 on the cell surface, with a suitable agent, thus converting the $CXCR4^{-/low}$ into $CXCR4^+$ cells, and sorting out those $CXCR4^+$ stem cells that migrate in response to SDF-1, wherein the $CXCR4^{-/low}$ stem cells are stimulated for up to five days with a suitable agent capable of converting $CXCR4^{-/low}$ into $CXCR4^+$ stem cells, thus converting the $CXCR4^{-/low}$ into $CD38^{-/low}$ $CXCR4^+$ stem cells, and wherein said suitable agent is selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said cytokines and stromal cells being cytokines and stromal cells involved in a process of maintenance, expansion, development, or combinations thereof, of stem cells.

126 (Previously presented). The method according to claim 125, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said suitable agent for 1-2 days.

127 (Cancelled)

128 (Previously presented). A method in accordance with claim 123, wherein said suitable agent is selected from

the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

129 (Previously presented). The method according to claim 123, wherein said suitable agent is a member selected from the group consisting of SCF and a mixture of SCF and IL-6.

130 (Previously presented). A method in accordance with claim 125, wherein said suitable agent is selected from the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

131 (Previously presented). The method according to claim 125, wherein said suitable agent is a member selected from the group consisting of SCF and a mixture of SCF and IL-6.